$n = \frac{m}{M}$ $n = \frac{\#particles}{6.02 \times 10^{23}}$

iem 111/112 Worksheet-Mole Name

nford

. Convert-Do all work in your notebook

) 4.0 mol of $Ca(OH)_2$ = _____ g	b) 120g of NaOH = _____ moles
:) 1.2 x 10^{24} atoms of Na = _____ moles	d) 132g of CO_2 = _____ molecules
:) 10g of oxygen = ____ moles of oxygen Molecules	f) 0.02 mol of CH_3OH = ____ g
g) 1.0 x 10^{23} atoms of K = ____ g	h) 0.20 mol of Cl_2 = ____ molecules

$(O_2$ 32 12 44. 44

a) 296 OR 3.0×10^2 mol

b) 3.00mol

c) 1.99 or 2.0 mol 24

d) 1.81×10^{24} molecul

e) 0.31 mol

f) 0.64 g

g) 6.49 g 23

h) 1.204×10^{23} molecule

m = 10g

n = ?

M = 32.0g mol

O_2 $2 \times 16.00 = 32.00$ g mol

$n = \frac{m}{M} = \frac{10g}{32.0 g/mol}$

n = 0.31 mol

1 C 12.01

2 O 32.00

44.01 g/mol

d) m = 132g CO_2

#p = ?

$\frac{m}{M} = \frac{\#P}{6.02 \times 10^{23}}$

$\frac{132g}{44.01 g/mol} = \frac{\#P}{6.02 \times 10^{23}}$

2.99 mol = $\frac{\#P}{6.02 \times 10^{23} \text{ molecules/mol}}$

1.81×10^{24} molecules = #p

f) n = 0.02 mol

m =

CH_3OH $n = \frac{m}{M}$

1 C 1 x 12.01

4 H 4 x 1.01

1 O 1 x 16.00

32.05 g/mol

0.2 mol = $\frac{m}{32.05 g/mol}$

0.64 g = m

Sealed Flask Calculations

$Al^{3+}(OH^-)_3$

NH_4 SO_4

NH_4

Al^{3+} OH^-

$(NH_4)_2SO_4$ OH^- OH^-

* Be sure to consider the number of each type of particle. *

Ex:

A sealed flask contains exactly 330g of ammonium sulfate

Find the following:

A) mol of ammonium sulfate

$n = \frac{m}{M} = \frac{330g}{132.17\frac{g}{mol}} = 2.50mol$

2 N	2 x 14.01 =	28.02
8 H	8 x 1.01 =	8.08
1 S	1 x 32.07 =	32.07
4 O	4 x 16.00 =	64.00
15 atoms		132.17 g/mol

B) mol of H

$2.50mol \times 8 = 20.00\ mol$

C) mass of O

$2.50mol \times 4 \times 16.00g/mol = 160.00g$

D) # of atoms of N

$2.50\ mol \times 2 \times 6.02 \times 10^{23}\ atoms = 3.01 \times 10^{24}\ atoms$

E) TOTAL # of atoms.

$2.50\ mol \times 15 \times 6.02 \times 10^{23} =$

$2.25 \times 10^{25}\ atoms$

2.25×10^{25}

N	2.5 x 2 x	6.02×10^{23}
H	2.5 x 8 x	6.02×10^{23}
S	2.5 x 1 x	6.02×10^{23}
O	2.5 x 4 x	6.02×10^{23}
		15